

# Surgical management of aortic prosthetic valve endocarditis

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- I. Perrotta S, Jeppsson A, Fröjd V, Svensson G.  
**Surgical treatment for infective endocarditis: A single center experience.**  
Submitted
- II. Fagman E, Perrotta S, Bech-Hanssen O, Flinck A, Lamm C, Olaison L, Svensson G.  
**ECG-gated computed tomography: a new role for patients with suspected aortic prosthetic valve endocarditis.**  
Eur Radiol. 2012 Nov;22(11):2407-14.
- III. Perrotta S, Aljassim O, Jeppsson A, Bech-Hanssen O, Svensson G.  
**Survival and quality of life after aortic root replacement with homografts in acute endocarditis.**  
Ann Thorac Surg. 2010 Dec;90(6):1862-7.
- IV. Perrotta S, Jeppsson A, Fröjd V, Svensson G.  
**Surgical treatment of aortic prosthetic valve endocarditis: A twenty-year single-center experience.**  
Ann Thorac Surg. 2015 Oct 7. pii: S0003-4975(15)01342-9.



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# Surgical management of aortic prosthetic valve endocarditis

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**Background:** Infective endocarditis (IE) is still associated with high mortality and morbidity despite advances in diagnostic, medical and surgical management.

**Aims:** I. To report short- and mid-term results after surgical treatment of IE in the current era and to compare the results between native valve endocarditis (NVE) and prosthetic valve endocarditis (PVE). II. To prospectively compare the ability of electrocardiogram (ECG)-gated computer tomography (CT) and transoesophageal echocardiography (TEE) to diagnose aortic PVE. III. To report our experience with implantation of aortic homografts in patients with aortic PVE or NVE with abscess. IV. To report the outcome of all patients operated for aortic PVE at our institution over the past 20 years and to examine whether the results have improved over time.

**Methods and methods:** In Study I, outcome after all consecutive patients operated for IE from 2008 to 2015 (n=254) was analysed. In Study II, 27 consecutive patients with aortic PVE underwent 64-sliced ECG-gated CT and TEE, and the results were compared and related to surgical findings. In Study III, outcome and Quality of life (QoL) in patients (n=62) with aortic PVE or NVE with abscess operated with implantation of an aortic homograft were analysed. In Study IV, outcome after all consecutive patients operated (n=87) for aortic PVE from 1993 to 2013 was analysed.

**Results:** In Study I, overall 30-day mortality was 8.7% and there was no statistically significant difference in 30-day mortality between patients with NVE and PVE (7.7% vs 11.1%,  $p=0.31$ ). Thirty-nine percent of the patients had severe perioperative complications. Overall survival at one and five years was 86% and 75%, respectively. In Study II, agreement was good between surgical findings and imaging with ECG-gated CT and TEE and very good for the combination of CT and TEE. ECG-gated CT identified more abscesses and thickened aortic root wall while TEE detected more valvular dehiscence and vegetations. In Study III, overall 30-day mortality was 15%. Thirty-five percent of the patients had severe perioperative complications. Cumulative survival was 82%, 78%, 75%, and 67% at one, three, five and ten years, respectively. QoL did not differ significantly between the homograft patients and an age- and gender-matched normal control group. In Study IV, overall 30-day mortality was 10%. Forty-one percent of the patients had severe perioperative complications. Cumulative survival was 81% at five years and 75% at ten years. Thirty-day mortality was higher (22% vs 3.6%,  $p=0.007$ ) and five-year cumulative survival was lower (66% vs. 88%  $p=0.013$ ) during the first decade.

**Conclusions:** Surgery for infective endocarditis was associated with high early mortality and a considerable complication rate. Long-term outcome was acceptable. Morbidity and mortality were comparable in NVE and PVE patients. ECG-gated CT had comparable diagnostic performance to TEE in patients with aortic PVE and may be a complement to TEE. Acute aortic PVE and NVE with abscess formation treated with aortic homograft had substantial early complication rate and mortality. Long-term survival and QoL were satisfactory in patients surviving the immediate postoperative period. Aortic PVE was associated with a high rate of early complications and substantial early mortality. Long-term survival was satisfactory. The results have improved markedly during the past decade.

**Keywords:** infective endocarditis, prosthetic valve endocarditis, surgery, aortic valve endocarditis.

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